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MEXICO'S COTTON PRODUCTION

MECHANIZATION IN BRAZIL

Foreign Agricultural Service
U.S. DEPARTMENT OF AGRICULTURE

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This week's cover:

**Some of Mexico's cotton is produced on ejidos, community property worked by individuals like these farmers weighing cotton at the edge of a field in northwestern Mexico. More about the country's cotton production begins this page (World Bank photo).**



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# Mexican Cotton

***This spring the author made an on-the-spot study of cotton acreage and yield trends in a country that still is the main U.S. rival in cotton export markets. He reports the main study findings below.***

By VERNON L. HARNESS
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Cotton leaders in Mexico are now taking a hard look at prospects for the national cotton industry.

For some years, shifts in the location of production have been occurring—with much of the acreage lost in certain older areas moving to newer areas and with steadily rising yields offsetting the small overall loss in acreage. Now, however, acreage reductions appear to be getting ahead of the uptrend in yields.

In 1965-66, production topped out at 2.6 million bales on just under 2 million acres. A 2-year decline followed, and in 1967-68 production totaled only 2.0 million bales on 1.7 million acres. Attractive cotton prices boosted area to 1.8 million acres in 1968-69, and production rose to 2.4 million bales as favorable growing conditions resulted in a record average yield of 647 pounds per acre.

It now appears that the 1968-69 increases will be short lived. For a number of reasons—most of them precipitated by lower cotton prices and slow export movement—area in 1969-70 is expected to fall below 1.5 million acres. Production of about 2.1 million bales would follow if a modestly higher average yield results from elimination of lower yielding land.

The consensus among cotton leaders in Mexico is that over the next several years cotton acreage will remain around

MEXICAN COTTON: AREA, PRODUCTION, CONSUMPTION, EXPORTS, 1959-68

| Season (beginning August 1) | Area | Production | Consumption | Exports |
|---|---|---|---|---|
| | *1,000 acres* | *1,000 bales* [1] | *1,000 bales* [1] | *1,000 bales* [1] |
| 1959 | 1,798 | 1,690 | 485 | 1,304 |
| 1960 | 2,234 | 2,100 | 515 | 1,610 |
| 1961 | 2,020 | 1,995 | 510 | 1,482 |
| 1962 | 2,064 | 2,425 | 510 | 1,897 |
| 1963 | 1,964 | 2,109 | 575 | 1,426 |
| 1964 | 1,935 | 2,400 | 600 | 1,616 |
| 1965 | 1,960 | 2,625 | 625 | 2,127 |
| 1966 | 1,732 | 2,250 | 700 | 1,392 |
| 1967 | 1,702 | 2,000 | 700 | 1,239 |
| 1968 [2] | 1,780 | 2,400 | 700 | 1,750 |

[1] 480 pounds net weight. [2] Partly estimated.

# roduction—a 1969 Closeup

the 1.5-million-acre level. Continuation of an uptrend in yields would assure production of slightly over 2 million bales. The general feeling is that cotton will remain an important crop within a diversified cropping pattern, especially in areas where high yields can be maintained at reasonable costs. Merchants and government agencies promote efforts to raise yields and lower costs through extension-type educational work.

## High production costs

Historically, cotton has been the most profitable crop that could be grown in the established cotton areas. Even on land that produced average or somewhat lower yields, cotton could be expected to reap a larger profit than competing crops. Now, with world and Mexican cotton prices at relatively low levels, yields higher than average are necessary for assured profits. Naturally, costs and profit relationships of all crops vary widely from farm to farm and from area to area.

Production costs in Mexico are considered relatively high by the country's cotton leaders. As the table below indicates, farmers with average cotton yields receive only $8 per acre above direct costs and returns are below total costs. As would be expected, there is considerable variation in costs and returns from one area to another and between farms within an area.

Average total costs of producing cotton in Mexico are estimated at 25.5 cents per pound for the 1969-70 crop and direct costs at 22.5 cents. Latest available data for U.S. costs (for 1966-67) indicate average total and direct costs per pound at about 26.6 cents and 20.6 cents. However, when U.S. figures are adjusted to a net weight prior ginning basis to make them more nearly comparable with Mexican data, U.S. total and direct costs per pound are about 24 cents and 17.0 cents.

While small returns should be expected during periods of low cotton prices, the cost data for Mexico may well be biased upward. In some areas a sizable part of the crop is produced on ejidos—community property worked by individuals. Yields and production costs for such production are generally below average, although there are striking exceptions; ejido data are not adequately reflected in the estimates. Also, total costs are somewhat misleading because relatively little land is rented for cotton production, and rent comprises most of the differences between direct and total cost.

In any case, direct costs more reliably indicate cotton's ability to continue production and to compete with other crops. It seems clear that those farmers who achieve only average yields will make little or no profit in most areas of Mexico. This is confirmed by an increasing level of debt carryover into the 1969-70 season. High-yielding land, on the other hand, will give profitable returns at present or even lower prices.

Offsetting high cotton-production costs in Mexico are relatively low ginning and marketing costs; a rough estimate of these costs shows them to be 1 to 2 cents per pound less than U.S. costs. Ginning charges (including bagging) average about $15 per bale compared with nearly $19 in the United States. Studies show that ginning and marketing costs absorb one-third to one-half of the price received for U.S. cotton in foreign markets.

Most Mexican cotton for export is pressed at the gin into bales of standard or high density, and an increasing portion is covered with lightweight cotton bagging and wire ties. Thus, the need for compressing is eliminated, and a saving in freight results from the lighter tare of approximately 10 pounds per bale. Domestic freight charges are relatively low because most cotton for export is produced fairly near the coast; cotton grown in the Laguna area is the major exception.

## Cotton prospects, by production area

**Mexicali.** The Mexicali area, usually Mexico's second or third largest cotton-producing region, is an extension of the Imperial Valley of California. Production totaled about 0.5 million bales annually for the 5 years prior to 1967-68, when a sharp outbreak of the pink bollworm contributed to a sharp drop in production. The following year, area was reduced from 309,000 acres to 222,000 acres. In 1969-70, area is expected to fall below 200,000 acres.

Adequate control of the pink bollworm is essential if higher yields are to be achieved. In fact, much of the recent acreage reduction occurred on marginal land where insect control was inadequate.

ESTIMATED COST OF PRODUCING COTTON IN MEXICO, 1969-70

| Item | Unit | West Coast | Laguna (Torreón) | Mexicali | Tampico | Tapachula | Juarez | National weighted average |
|---|---|---|---|---|---|---|---|---|
| Area harvested | 1,000 acres | 509 | 247 | 198 | 161 | 74 | 47 | 1,436 |
| Yield per acre | Pounds | 775 | 742 | 790 | 435 | 577 | 439 | 706 |
| Income per acre | Dollars | 184 | 177 | 188 | 101 | 135 | 108 | 167 |
| Production | 1,000 bales[1] | 822 | 382 | 326 | 146 | 89 | 43 | 2,112 |
| Cost per acre: | | | | | | | | |
| Direct | Dollars | 170 | 182 | 186 | 81 | 134 | 124 | 159 |
| Total | do | 192 | 202 | 208 | 98 | 150 | 143 | 180 |
| Return per acre over— | | | | | | | | |
| Direct cost | do | 14 | −5 | 2 | 20 | 1 | −16 | 8 |
| Total cost | do | −8 | −25 | −20 | 3 | −15 | −35 | −13 |
| Cost per pound: | | | | | | | | |
| Direct | Cents | 21.9 | 24.6 | 23.5 | 18.7 | 23.2 | 28.2 | 22.5 |
| Total | do | 24.8 | 27.2 | 26.4 | 22.4 | 26.1 | 32.6 | 25.5 |
| Price per pound received by farmer | do | 23.8 | 23.8 | 23.8 | 23.2 | 23.4 | 24.5 | 23.7 |

[1] 480 pounds net.

The appearance of the pink bollworm in a heretofore "free" area is only one of several major problems confronting cotton in Mexicali. While yields usually average between 1,000 pounds and 1,500 pounds per acre on the U.S. side of the valley, the average on the Mexican side is usually between 700 pounds and 800 pounds per acre. Irrigation water is quite limited and its salt content is extremely high despite remedial efforts by U.S. and Mexican authorities. Water application is often untimely, and many fields need further leveling and better soil handling.

Mexicali's cotton acreage can be expected to remain near the present level for several years. With the assistance of a sizable loan from the World Bank, the area is to be reclaimed where necessary and consolidated into a more compact unit to conserve available water and use it more efficiently. The area's irrigation system is to be renovated, and further efforts will be made to reduce the salinity level. Farmers outside of the reduced areas are to be relocated—some of them on land owned by the government and some on land taken from farmers who now have more than the legal limit of approximately 50 acres of irrigated land.

When completed, this project will almost certainly have raised cotton yields considerably.

**West Coast.** Mexico's largest cotton region, the West Coast, is expected to reduce its cotton area and production 5 to 10 percent in 1969-70 from the relatively high levels a year earlier of 581,000 acres and 946,000 bales. In this agriculturally rich, highly diversified region farmers unable to maintain better-than-average cotton yields find other crops more attractive. Over the next several years, low cotton prices should encourage more marginal cotton producers to shift land to other crops.

Of the West Coast's three subregions, the southern part—in the State of Sinaloa—has the lowest average yield and highest production-unit cost structure. The area is more humid than other parts of the West Coast and insect infestation is sometimes serious. Low cotton prices could encourage considerable shifting of land to other crops in this subregion. Sinaloa now accounts for nearly one-third of West Coast cotton area and just over one-fourth of production.

In the southern Sonora subregion, centered at Ciudad Obregon, cotton is well entrenched in a diversified, highly productive system. Cotton yields are higher here than farther south, but less efficient farmers find it difficult to produce cotton profitably.

In the northern Sonora subregion around Hermosillo and Caborca, cotton is clearly the most profitable large-scale land use. Here yields are the highest of the West Coast area, and, at current price levels and profit margins, cotton should be able to maintain present acreage.

With the spread in profits between crops estimated to be no greater than shown in the table below left, the drive for diversification gains is important. Of course, a farmer able to maintain high yields at reasonable costs in a particular crop will probably keep much of his land in that crop; such a farmer's limiting factor may be water or operating capital.

WEST COAST COTTON REGION, MEXICO: ESTIMATED RETURNS FROM MAJOR COMPETING CROPS IN THREE SUBREGIONS

| Subregion and crop | Income | Cost | | Return over— | |
|---|---|---|---|---|---|
| | | Direct | Total | Direct cost | Total cost |
| | *Dollars per acre* | *Dollars per acre* | *Dollars per acre* | *Dollars per acre* | *Dollars per acre* |
| Sinaloa: | | | | | |
| Cotton | 186 | 162 | 186 | 24 | 0 |
| Wheat | 71 | 58 | 83 | 13 | −12 |
| Soybeans | 84 | 58 | 83 | 26 | 1 |
| South Sonora: | | | | | |
| Cotton | 201 | 168 | 193 | 33 | 8 |
| Wheat | 95 | 58 | 83 | 37 | 12 |
| Soybeans | 84 | 58 | 83 | 26 | 1 |
| North Sonora: | | | | | |
| Cotton | 223 | 181 | 206 | 42 | 17 |
| Wheat | 95 | 58 | 83 | 37 | 12 |

Note: Data reflect comparable situations with regard to competitive crops but are not comparable with data in table on production costs by area.

**Laguna.** Centered around the city of Torreón and second or third largest cotton-producing area in Mexico each year, the Laguna region is expected to have a larger cotton crop in 1969-70 than the year before.

Despite disappointment with current prices, efficient producers in this area find cotton profitable; the crop is well established in the area's balanced agricultural system. Production costs are relatively high but are offset by high yields. Yields would be even higher and costs lower if a sizable part of the crop under cultivation were not in ejidos. Although work is underway to improve the irrigation system, the cotton area could decline somewhat over the next several years if the water supply falls to a more nearly normal level. The present unusually high water supply is a result of heavy rainfall upstream from the reservoir.

**Altamira.** This area northwest of Tampico was known a few years ago as the Cinderella cotton area of Mexico. From 1960 to 1965-66 production skyrocketed—from no commercial crop to one of 490,000 bales. Despite relatively low yields profits were fantastically high, since the area required no irrigation or fertilization and costs of land and of insect control were low. Natural risks are great in this area, however, because it is subject to drought, untimely rains, and severe storm damage. Also, insect control is becoming more expensive.

In recent years, acreage and production have fluctuated sharply. Because of the hazardous growing conditions the Mexican Government has severely limited the area covered by crop insurance. Crop financing is difficult to obtain without this coverage, especially in view of present price levels.

**Other areas.** Tapachula cotton acreage could increase over the years, since additional land could be cleared and competition from other crops is limited. Overall production costs are low, but yields are uncertain and the area is far removed from major market centers.

La Paz maintains one of Mexico's highest yields, and costs are sustainable at present prices. However, irrigation water (from wells) is limited, and wheat prices are sometimes attractive enough to cause some shifting of land from cotton.

Apatzingan seems to have settled into a farming pattern in which cotton is expected to hold steady.

Other cotton-producing areas—including Delicias, Juarez, and Matamoros—will do well if they maintain present production levels over the next several years. In Delicias, a cutback in crop insurance is expected to roll back 1969-70 area to about 17,000 acres from the 64,000 acres planted a year earlier. Pressure from other crops and the always-present threat of water shortages seem certain to reduce cotton acreage in most minor areas over the longer run.

# Farm Mechanization Comes Slowly to Brazil

By SHACKFORD PITCHER
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Mechanization is creeping into agriculture so slowly in Brazil that one speaks of the number of farms per tractor rather than the conventional tractors per farm. In fact, most Brazilian crops are still hand picked or harvested, including about 40 percent of the wheat and soybeans. Brazil has one of the lowest tractor densities in the world; the number of tractors on farms at the end of 1968 was estimated at 100,000 units equivalent to about one per 770 acres of arable land or about 34 farms per tractor. Eliminating farms smaller than 25 acres, the ratio stands at one tractor per 22 farms.

Farm mechanization is concentrated in southern Brazil with most of the tractors located in the States of São Paulo, Paraná, and Rio Grande do Sul. São Paulo alone accounts for 40 percent of the total. The crops most heavily mechanized are sugarcane, cotton, wheat, rice, and soybeans. Tractors are used mainly for plowing and land preparation before planting and some mechanical harvesting equipment is used for wheat and soybeans.

## Slow mechanization linked to expense

One reason for the scarcity of tractors in Brazil is their expense in relation to farm income. A medium-sized tractor (44 hp) sells for about US$4,790 in São Paulo (compared to about US$4,300 in the United States). Included in this price are various taxes amounting to about 20 percent of what a farmer pays for a tractor. In mid-1968 the government temporarily exempted tractors from a federal excise tax of 5 percent. The Brazilian tractor industry has made numerous appeals to the government to also give an exemption on the 17-percent value-added state sales tax.

The high rate of interest is another factor that weighs heavily in the farmer's cost when buying a tractor, as nearly all tractors are financed. If a farmer does not pay cash for a tractor, then about 49 percent for interest and other financing expenses has to be added to its selling price.

## Ministry of Agriculture mechanization program

In an attempt to spur the mechanization of Brazilian agriculture, the Ministry of Agriculture in 1968 announced a national program, PLANAME, which among other goals called for the financing of 93,000 tractors during the 3-year period 1969-71, by the creation of a $150 million special government fund. However, due to budgetary limitations the fund has not been set up yet.

Another objective of PLANAME is to reduce prices of locally manufactured tractors by encouraging efficiency within the industry. The Brazilian tractor industry, which began production in 1960, manufactures most of the tractors which are sold in Brazil today. Prior to the creation of the local industry, Brazil imported tractors from so many countries that it is estimated there are more than 300 types of 155 makes in Brazil. This large number of different types of imported tractors created serious problems for farmers in regard to servicing and parts.

In spite of having most of the market reserved for Brazilian-manufactured farm equipment, the tractor companies have not always been able to operate efficiently due to fluctuating demand for their products. The industry's best year was in 1964 when 11,537 tractors were produced, only to be followed by a decline in sales reaching a low of 6,284 tractors in 1967. Sales picked up in 1968 when 9,671 tractors were built, and the outlook for 1969 appears slightly better.

The national program also calls for the reequipment of the Ministry's tractor stations which make available tractor

*Below, combine harvesting wheat on a Brazilian farm. About 60 percent of Brazil's wheat crop is harvested mechanically. Right, tractor cultivating corn in Paraná.*

and other farm equipment services to farmers on a cost basis. Most of the equipment at these stations is used for heavy jobs such as land clearing, road building, and initial soil preparation.

Other aims of PLANAME, which include an extension of the financing period for the purchase of domestically manufactured tractors, and the participation by commercial banks in financing tractor sales to farmers, appear to have been accomplished. The Bank of Brazil does not finance imported tractors or other farm machinery, except when imported under special government programs, and until mid-1968 it was practically the only bank financing farmers' purchases of Brazilian-manufactured tractors and farm machinery. However, since mid-1968 some private commercial banks have been financing farm equipment purchases, usually as agents under government programs. A recent banking reform requiring commercial banks to place at least 10 percent of their loan portfolio in farm loans may make additional funds available for farm machinery purposes even though the banks are not making long-term loans with this money.

Until the government recently lowered them, interest and charges amounted to 18 percent per annum and the only money available at these favorable rates was from the Bank of Brazil. At the present time a 4- to 5-year loan at 15 percent per annum can be obtained from the Bank of Brazil or cooperating banks for farm machinery purchases. The repayment schedule is 10 percent of the principal the first year, increasing 5 percent yearly until the final payment of 30 percent. A system of credit insurance has just been introduced which permits the farmer to use the equipment as collateral rather than having to mortgage his farm property as was formerly required.

In addition to the domestically directed PLANAME, the Ministry of Agriculture from time to time also sponsored the importation of farm equipment. Brazil is importing 300 combines from Yugoslavia which are to be sold by the Ministry to farmers with payment over a 6-year period. About half of the combines are being sold to wheat farmers in Rio Grande do Sul.

The São Paulo Department of Agriculture is also promoting mechanization of farming through an agency called DEMA which maintains 30 tractor stations throughout the State. Like the Ministry stations, most of their machinery is for heavy work such as land clearing, leveling, drainage, digging irrigation canals, and construction of reservoirs. DEMA also runs five schools for training tractor operators and has an Agricultural Engineering Center for testing equipment and maintaining its 500 heavy tractors. DEMA charges only the operating costs for its services and allows farmers to make payment in five installments over a 16-month period. In 1968 DEMA performed tractor services for over 5,000 farmers.

# Libya's Olive Industry Faces New Demands

Olive growing, one of Libya's more important agricultural industries for many centuries, is not developing at a pace to match the rising domestic demand. In fact, if the shortage of agricultural labor and the apparent lack of expansion of the olive plantings continue, Libya will become increasingly dependent on imports of olive oil and possibly other fats.

The market for edible fats and oils in Libya is largely limited to olive oil and a local liquid butter or "samnh" at the present time. However, the demand for other edible seed oils, butter, margarine, lard, and other hydrogenated fats in oil-rich Libya is increasing and will be expanding more significantly as consumers experience further contact with the Western World and as their purchasing power increases. Libya's growing market for seed oil will probably offer an opportunity in the future, not only for marketing significant quantities of bottled or tinned oil, but also for bulk seed oil which could be refined and packed locally.

The outlook for the 1969-70 olive harvest which begins about October is somewhat better than last season's off-year harvest of 28,000 metric tons. It is estimated that Libyans consume about 18,000 to 20,000 tons of vegetable oil annually, virtually all olive oil—a per capita annual consumption of 26.5 to 28.7 pounds.

Libya's recent annual imports of olive oil have been erratic, ranging from 6,000 to 11,000 tons. Spain was one of the principal suppliers until 1968 when Libya started to switch to imports of crude bulk olive oil for local refining. Tunisia has now become the most important supplier and there are indications that Morocco may sell some of its 1969-70 olive oil surplus to Libya. An oil industry specialist explained that it is more economical for Libya to import lower priced bulk oil of relatively high acidity and then reduce the acidity.

At the present time there are an estimated 4.5 million olive trees in Libya—about 75 percent are in Tripolitania and most of the remaining 25 percent are in Cyrenaica. Only a few hundred trees are located in the southern oases of Fezzan. Because of variable weather conditions, the cyclical nature of production, and serious labor shortages, the annual output of olives and olive oil fluctuates widely.

Libya reportedly has about 150 olive-crushing establishments. In addition, in some oases and remote areas, oil is still processed in crude home grinders and presses. The quality of Libyan oil varies considerably; it tends to be relatively acid and often contains impurities. Libyans appear to prefer domestic olive oil with its distinct acid taste to the higher quality refined or imported product.

A central olive oil refinery which operates under the authority of the Ministry of Agriculture is located in Tripoli. It refines much of the local production, as well as imported olive oil. The modern plant packs some 50,000 tins of 1.76 pounds each day, with the oil standardized at 3-percent acidity. In addition the facility refines about 500 tons of olive oil at 1-percent acidity for the domestic fish-canning industry. The plant is also equipped to refine and tin (or bottle) other edible oils. The Ministry of Agriculture's refinery is also the central point of reception and storage for local and imported olive oil and it coordinates the distribution of the oil throughout the country. Sales of domestic olive oil are controlled by the Bank of Libya in an effort to stabilize the market although free trading in olive oil is also possible. Oil is currently purchased from producers throughout the country at about 41 to 49 cents per pound.

—Based on dispatch from PAUL FERREE
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# Ceylon's Food Situation Improves

By JOHN B. PARKER
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From 1965 to 1968 Ceylon's estimated grain consumption rose 14 percent—mainly because of record harvests of rice and record imports of wheat flour. In the same period the energy value of the average daily diet in Ceylon—three-fifths of which comes from rice, wheat flour, corn, and millets—rose about 10 percent—from 2,180 calories to 2,400 calories.

In 1969 the average daily calorie intake may rise again—if the country's government-sponsored "Grow More Food" campaign, begun in 1965, continues to be successful. The greatest nutritional breakthrough of this campaign occurred in 1967 when rice output jumped 20 percent. At the same time wheat flour arrivals rose 84 percent.

Evidence of Ceylon's improving food situation can be seen in the table, page 8. Between 1960 and 1968, per capita use of wheat flour jumped from 44.3 pounds to 79.8 pounds, accounting for 5.4 grams of the 11.1-gram increase in daily per capita protein intake during the period. Also in this period larger imports of fish and pulses enhanced the protein content of the diet.

In addition to these protein-boosting imports, Ceylon has helped increase its homegrown protein through greater domestic output of milk and meat—with the help of Australia and New Zealand under the Colombo plan.

## Why wheat flour use grew

Various types of bread and bakery products have become an established part of the Ceylonese diet in recent years because of low consumer prices for wheat flour, a rapid rise in output of noodles and bakery products, high prices for rice, and occasional shortages of rice.

Arrivals of wheat flour jumped to 494,000 metric tons in 1967, from 268,000 tons in 1966—as Ceylon became the world's second largest wheat flour importer (after the United Arab Republic). In 1968, Ceylon's wheat flour imports declined slightly, and sources of the imports changed. American wheat flour exports to Ceylon rose from 48,000 metric tons in 1967 to 215,000 tons in 1968, making it our largest wheat flour export customer for the first time; almost all sales in both years were under P. L. 480.

A rapid shift from rice to wheat flour consumption began in urban areas in December 1966 when Ceylon's food commissioner changed the country's rice ration—from 4 pounds per person per week at low prices to 2 pounds per person per week free of charge. Ceylon's food commissioner handles imports of certain food commodities including rice, wheat flour, and sugar. In fiscal 1967-68 the Government of Ceylon made enough profit from the sale of wheat flour and sugar to compensate for losses incurred through the free distribution of imported rice.

In December 1968 Ceylon's first flour mill—located in the harbor of its capital Colombo—began operating. The mill, which was constructed with Russian assistance, can process 70,000 tons of wheat annually into 50,000 metric tons of flour. This amount will provide only about 10 percent of the country's demand. Most of the wheat to be milled here will come from Australia this year.

## More homegrown rice

The smaller rice ration begun in December 1966 resulted in a reduced cost of Ceylon's foreign exchange for rice imports and contributed to a greater demand for domestic rice on the open market. Ceylon's rice imports, which had averaged above 508,000 metric tons annually during 1961-66, dropped to only 380,000 tons in 1967, and were about the same in 1968. The distribution of rice through the ration system declined from 1 million tons in 1965 to about 500,000 tons in 1968, while the distribution of rice by farmers and the open market tripled, reaching about 680,000 tons during the same period.

Contributing to the sharp decline in Ceylon's rice imports in 1967 was the shortage of Burmese rice available for export. Burma—along with Mainland China and Thailand—has supplied most of Ceylon's rice imports in recent years. Ceylonese imports of American rice ended in 1961.

Milled rice in Ceylon shot up to a record 900,000 metric tons in 1968, which compared with 783,000 tons in 1967 and 655,000 in 1966 and was almost double the poor 1965 harvest. Rice production in 1969 is scheduled to increase 15 percent over 1968.

On about half of the 1.7 million acres of rice land, improved varieties are planted—mostly locally developed hybrids. Overall rice yields have increased; responsible for much of the increased yields is H-4, a popular hybrid variety. Fertilizer and pesticide use has increased sharply because of government subsidies and credit from cooperatives.

Ceylon has two rice crops. The Maha, or spring, rice crop grown on 1.1 million acres is harvested in February and March. The Yala, or fall, rice crop grown on some 600,000 acres is harvested in October and November.

In the past decade about 100,000 acres of fertile rice land have been cleared from the jungles in eastern Ceylon. Some of the highest yields have been obtained in other new rice fields of the Gal Oya Valley in this area. The new dam in this valley and other new dams in eastern Ceylon have greatly enlarged the irrigated rice area. New dams scheduled for completion in the next 5 years are expected to add 400,000 acres of new irrigated land. The use of fertilizer on rice in 1967-68 was more than double the 1965-66 level.

## Other food supplies, other imports

Ceylon's imports of agricultural inputs have increased sharply as efforts to increase yields have intensified through the "Grow More Food" campaign. Until the first fertilizer factory begins operating in 1972 all fertilizer must be imported. The new fertilizer plant, which will make urea, will be built in connection with a new petroleum refinery.

Fertilizer imports have increased from $11.9 million worth in 1963 to about $22 million in 1968. Major suppliers have been the United Kingdom, United States, West Germany, and Japan. In 1967, the United States exported $4.5 million worth of ammonium sulfate to Ceylon.

Ceylon's imports of farm tractors reached a record of over

CEYLON FOOD SUPPLIES AND CALORIE AND PROTEIN CONTENT OF DIET

| Kind of food | Available per year: Total | | | Available per year: Per capita | | | Daily per capita intake from specified food: Food energy | | | Daily per capita intake from specified food: Protein | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1959-61 average | 1965 | 1968 | 1959-61 average | 1965 | 1968 | 1959-61 average | 1965 | 1968 | 1959-61 average | 1965 | 1968 |
| | *1,000 metric tons* | *1,000 metric tons* | *1,000 metric tons* | *Pounds* | *Pounds* | *Pounds* | *Calories* | *Calories* | *Calories* | *Grams* | *Grams* | *Grams* |
| Rice | 1,040 | 1,163 | 1,190 | 231.7 | 228.8 | 222.2 | 1,037 | 1,025 | 994 | 19.3 | 19.1 | 18.5 |
| Wheat flour | 199 | 272 | 427 | 44.3 | 53.6 | 79.8 | 184 | 222 | 331 | 6.7 | 8.1 | 12.1 |
| Corn | 7 | 10 | 21 | 1.5 | 2.0 | 4.0 | 7 | 9 | 18 | .2 | .2 | .5 |
| Millets | 15 | 16 | 27 | 3.1 | 3.1 | 5.1 | 13 | 13 | 21 | .3 | .3 | .5 |
| Total, 4 grains | — | — | — | — | — | — | 1,241 | 1,269 | 1,364 | 26.5 | 27.7 | 31.6 |
| Pulses | 57 | 68 | 96 | 12.8 | 13.7 | 17.9 | 57 | 61 | 80 | 3.2 | 3.4 | 5.1 |
| Total food grains | — | — | — | — | — | — | 1,298 | 1,330 | 1,444 | 29.7 | 31.1 | 36.7 |
| Preserved milk | 21 | 23 | 26 | 4.6 | 4.4 | 4.8 | 22 | 20 | 24 | 1.3 | 1.2 | 1.4 |
| Fresh milk | 88 | 92 | 135 | 19.6 | 18.1 | 25.1 | 18 | 17 | 25 | .9 | .8 | 1.3 |
| Cassava | 200 | 343 | 340 | 44.5 | 67.5 | 63.5 | 60 | 91 | 86 | .5 | — | — |
| Copra | — | — | — | — | — | — | 248 | 245 | 240 | 2.5 | 2.5 | 2.5 |
| Vegetable oils | 40 | 45 | 54 | 8.8 | 8.8 | 10.1 | 97 | 97 | 112 | — | — | — |
| Sweetpotatoes | 25 | 66 | 83 | 5.5 | 13.0 | 15.4 | 7 | 17 | 20 | .1 | .3 | .3 |
| Potatoes | 53 | 59 | 79 | 11.9 | 11.9 | 14.8 | 10 | 10 | 12 | .3 | .3 | .4 |
| Sugar and preparations | 212 | 221 | 280 | 47.8 | 43.4 | 52.2 | 225 | 207 | 249 | .1 | .1 | .1 |
| Fish | — | — | — | — | — | — | 65 | 68 | 84 | 8.7 | 9.1 | 11.2 |
| Meat | 27 | 33 | 58 | 5.9 | 6.6 | 10.8 | 15 | 17 | 24 | 1.0 | 1.1 | 1.6 |
| Eggs | 10 | 12 | 18 | 2.2 | 2.2 | 3.3 | 4 | 4 | 6 | .3 | .3 | .4 |
| Butter | 2 | 2 | 2 | .4 | .4 | .4 | 4 | 4 | 4 | — | — | — |
| Fruits | 79 | 90 | 163 | 17.6 | 17.6 | 30.4 | 9 | 9 | 16 | .1 | .1 | .2 |
| Vegetables | 440 | 495 | 677 | 98.1 | 97.4 | 126.5 | 37 | 37 | 48 | 1.8 | 1.8 | 2.3 |
| Oilseeds | — | — | — | — | — | — | 3 | 7 | 6 | — | — | — |
| Total | — | — | — | — | — | — | 2,120 | 2,180 | 2,400 | 47.3 | 48.7 | 58.4 |

4,000 in 1967. Of these the United Kingdom sent 1,550 and France 1,472. The remainder came from Australia, United States, and Japan. In 1968, Japan shipped 1,040 garden tractors to Ceylon and about 100 four-wheel farm tractors.

Ceylon's imports of improved seeds, insecticides, and farm tools have also increased in the past few years. New facilities for preserving potatoes have caused imports of seed potatoes to decline, but imports of seed for rice, corn, peanuts, and vegetables have increased.

The government has instituted a special program to encourage the output of noncereal food crops through guaranteed purchase arrangements, and subsidized inputs; this program has contributed to increased production of sugar, root crops, and vegetables.

In the hills, temperate-type vegetables such as cabbage, lettuce, and cauliflower have become popular. In northern Ceylon the production of onions, chili peppers, and pulses has increased.

Corn production has risen in the irrigated valleys of eastern and southern Ceylon. In 1968, corn production was a record 17,000 tons—up from 11,000 tons in 1966. Contributing to the rise were the high yields from hybrid corn grown under irrigation in the Badulla area. In 1968, the United States exported about 5,000 tons of corn to Ceylon.

# U.K. Cheese Suppliers Agree to Voluntary Restrictions

In the continuing story of the United Kingdom's growing imports of Cheddar and Cheddar-type cheeses (see *Foreign Agriculture,* May 26 and Feb. 17, 1969, and July 22, 1968), Minister of Agriculture the Rt. Hon. Cledwyn Hughes has announced that all of Britain's major foreign suppliers have now agreed to voluntarily restrict exports through March 31, 1970.

Permitted imports for the 2-year period April 1, 1968, through March 31, 1970, amount to 271,000 long tons. After deducting actual imports in 1968-69, the balance for April-March 1969-70 is 116,700 tons. Imports from East European countries are not included in these arrangements as they are already limited by quota under bilateral agreements.

Total imports of Cheddars rose from 134,400 tons in 1967-68 to 143,000 tons in 1968-69, while domestic production, which accounts for about 45 percent of total supplies, fell from 117,700 tons to 114,500. By far the largest supplier of the imported cheese is New Zealand; other important ones are Ireland, Canada, and Australia. Cheddars also have been coming in from the Netherlands, France, Norway, and South Africa.

New Zealand, Australia, and Ireland agreed to the restrictions earlier this year, while negotiations with the other countries were completed more recently. According to Minister Hughes, the overall agreement makes imposition of antidumping or countervailing duties unnecessary.

Imports permitted from each major supplier are:

| Supplier | Quantity *1,000 tons* |
|---|---|
| New Zealand and Australia | 177.1 |
| Ireland | 35.0 |
| Canada | 31.0 |
| Netherlands | 11.0 |
| France | 10.0 |
| Denmark | 3.0 |
| Norway | 2.6 |
| South Africa | 1.3 |
| Total | 271.0 |

# Major Wheat Exporters Confer on Grains Arrangement

Representatives of the world's major wheat exporters this month held another in their series of informal meetings to discuss the international wheat-marketing situation. The meetings are aimed at maintaining market stability and international cooperation in matters of wheat trade within the context of the International Grains Arrangement—the trade, price, and food-aid agreement in effect for just over a year.

After the meetings, the conferees issued the following communiqué:

"In furtherance of the objectives of the International Grains Arrangement, Ministers and senior officials of the five major wheat exporters, Argentina, Australia, Canada, European Economic Community, and the United States, met in Washington on 10 and 11 July. The meeting followed earlier exporters' meetings both before and since the entry into force of the International Grains Arrangement on July 1, 1968.

"The Ministers reviewed the supply/demand situation in the international wheat market. They also examined the sales performance of each of the major exporters and the price relationships between grades and qualities of wheat as set out in the Schedule of the International Grains Arrangement.

"The Ministers, in reviewing current prices in world markets, recognized that distortions had appeared and that corrective action would be taken by some exporters to bring prices into proper competitive relationship in the interests of orderly marketing and price stability.

"The Ministers reiterated their support for the International Grains Arrangement and expressed their determination to strengthen its operations.

"As a means of making the Arrangement more effective, the Ministers agreed to maintain continuing consultations to deal with problems that may arise."

*Secretary Hardin, left, greets Australia's Deputy Prime Minister John McEwen at recent wheat exporters' meeting.*

Secretary of Agriculture Clifford M. Hardin and Assistant Secretary for International Affairs and Commodity Programs Clarence D. Palmby led the U.S. delegation to the meetings, with Secretary Hardin serving as chairman. Principal delegates from the other countries were Alberto Fraguio, Under Secretary for Foreign Commerce, and Federico Dussel, technical expert, National Grain Board, Argentina; John McEwen, Deputy Prime Minister and Minister for Trade and Industry, and Sir Alan Westerman, secretary, Department of Trade and Industry, Australia; Jean-Luc Pepin, Minister of Industry, Trade, and Commerce, and Horace A. Olson, Minister of Agriculture, Canada; Louis Georges Rabot, Director General for Agriculture, EC Commission, and Pierre Malve, Assistant Chef de Cabinet to the Commissioner for External Trade, European Community.

## Australia Expands Rice Acreage

The New South Wales Minister for Conservation, J. G. Beale, last week announced the new water allocations to rice growers for the 1969-70 season, which indicate that acreage planted to rice in New South Wales this coming year will increase by over 14,000 acres.

The increase in acreage is largely a result of new growers entering the industry in the Murray Irrigation Districts and in the Coleambally Irrigation Area. The 41 new farms allocated in the Coleambally Area last year will be able to grow the normal 60 acres of rice available to individual farmers in that area for the first time this season. This would mean an increase upwards of 2,400 acres. In the Murray Irrigation Districts a new minimum allocation of 30 acres per farm has been set, an increase of 10 acres over the previous minimum. In addition, there will be a number of new growers in the Murray Districts on farms which were created by subdivision prior to August 14, 1968. The rice acreage in the Murray Irrigation Districts is expected to increase by about 11,300 acres.

Virtually all Australian rice is grown in New South Wales. The 1968-69 acreage was approximately 84,000 acres, and consequently the total acreage for 1969-70 may reach 98,000 acres. On the basis of average yields during recent years, this could result in an Australian crop of about 284,000 metric tons of paddy, up from 239,000 tons last year.

Australia is a net exporter of rice and any increase in production should add to its export availabilities.

—Based on dispatch from
*Office of U.S. Agricultural Attaché, Canberra*

## Proposed EC Grain Prices

The European Community Commission recently made its proposal for 1970-71 grain prices in the Community. If accepted by the EC Council of Ministers. the proposed prices would narrow the price spread between domestically grown wheat and imported feedgrain, thereby encouraging further feeding of EC wheat at the expense of imported feedgrain. The proposed prices with 1969-70 comparisons, are:

| Item | 1970-71 | | 1969-70 | |
|---|---|---|---|---|
| | Target | Intervention | Target | Intervention |
| | *Dollars per metric ton* | *Dollars per metric ton* | *Dollars per metric ton* | *Dollars per metric ton* |
| Soft wheat ..... | 107.25 | 97.75 | 106.25 | 98.75 |
| Durum wheat ... | 125.00 | 117.50 | 125.00 | 117.50 |
| Rye ..... | 98.50 | 90.00 | 97.50 | 91.00 |
| Barley ..... | 96.50 | 88.50 | 95.44 | 88.50 |
| Corn ..... | 97.50 | — | 95.44 | — |

*At plague levels the Desert Locust can chew up man's very livelihood throughout a vast region. Timely reporting and prompt international cooperation are the keys to control.*

# Threat of Desert Locust Plague Recedes

By H. CHARLES TREAKLE
*Foreign Regional Analysis Division*
*Economic Research Service*

The menace of a Desert Locust plague, which has been hanging over broad areas of the Middle East, Africa, and Asia for more than a year (see *Foreign Agriculture*, June 24, 1968), appears to have been averted.

Timely reporting and active international cooperation prevented serious locust damage during the summer and fall of 1968 in most of the countries concerned. But the threat boiled up again in Saudi Arabia by early 1969—and locusts that swarm from the Arabian Peninsula on the prevailing winds can suddenly endanger crops thousands of miles and whole continents away. During the spring, however, the Saudi Government and the U.S. Air Force carried out a large-scale spraying program; and this is reported to have brought the 1969 locust menace under control, not only for Saudi Arabia but for all the areas brushed by the prevailing winds.

From 1962 there had been a general recession in activity by the Desert Locust. Then, in September 1967, a buildup was noted throughout the areas subject to attack. During the summer of 1968, locusts caused considerable crop damage, reaching near-plague proportions in several countries.

In Africa, concentrations were reported at various locations —from Morocco south through Mauritania in the west, across the sub-Sahara, through Sudan and eastern Africa, including the "Horn of Africa"—the point of land that separates the Gulf of Aden from the Indian Ocean. However, most of the area west of Sudan escaped serious damage. In Sudan, the Horn, and eastern Africa, large concentrations were battled by country teams with help from the Food and Agriculture Organization of the United Nations; the principal efforts, however, came from the Desert Locust Control Organization for Eastern Africa (DLCOEA), a regional group aided by sizable grants from FAO, the United States, and the United Kingdom. Other countries that contributed to locust control were West Germany, the USSR, Canada, and France. All countries with serious invasions mobilized their efforts, and losses were kept to a minimum.

In the Middle East and Asia, swarms were also reported—some traveling with the prevailing winds as far east as India and as far north as Syria. Saudi Arabia, Yemen, Southern Yemen, Iran, and Pakistan had to carry out active control programs. But, owing to prompt controls in most countries and to intercountry cooperation, damage during the summer and early fall was not serious except in isolated spots.

Nevertheless, as 1968 drew to a close, the Desert Locust still remained a "ticking time-bomb," which had to be deactivated or losses to agriculture could become serious. Despite continuous control action in late December and early January, scattered swarn buildups were again being reported in Morocco, Algeria, Mauritania, Mali, Niger, and Chad, by individual observers and by regional groups such as the Organisation Commune de Lutte Antiacridienne et de Lutte Antiaviaire (OCLALAV)—which has long combated harmful birds and insects in that area. Also, both mature swarms and newly hatched hoppers were reported along the Red Sea coast, from the southern part of the UAR and Sudan through Ethiopia, and south to the southern part of the Somali Republic. Rains in some of this area made control more difficult, but buildups were closely watched by FAO specialists and country groups, and wherever possible, prompt control action was taken. In eastern Africa, DLCOEA's measures appear to have effectively broken up the large concentrations.

### The Saudi Arabian campaign

Meanwhile, across the Red Sea, mature adults and fledg-

## *Highlights on the Desert Locust*

The Desert Locust can be a problem in as much as a fifth of the world's land. Locust plagues—as old as history and recorded in the Bible and by Pliny, St. Augustine, and others—have been battled by man over the centuries but remain one of agriculture's most serious pests. Since 1960 some 50 countries have taken part in battling the Desert Locust, which more than any other locust is—

· Voracious. Locusts weigh an average of a couple of grams and eat their weight each day. At this rate, 200 to 300 locusts eat about a pound of food a day; and a ton of them eat as much as 250 people eat a day. In one season (1954-55), the Desert Locust ate up an estimated $10.8 million worth of crops in Morocco—mostly citrus trees, which yield a major export. A swarm of locusts a square mile in size can eat 400 tons in one day, and some swarms cover hundreds of square miles. In 1889, a particularly large swarm was estimated to extend over 2,000 square miles.

· Mobile. The Desert Locust can migrate 2,000 to 3,000 miles and often does. Swarms have been reported 1,200 miles at sea. Swarming locusts will move an average of 50 miles per day, aided by local cyclonic desert winds and by prevailing winds, which sweep across breeding and hatching areas from various directions throughout the year.

· Fertile. Female locusts usually lay three times, at intervals of 5 or 6 days, each time an egg case holding 20 to 120 eggs. Eggs hatch in 2 or 3 weeks. If weather is favorable and the hatch greatly exceeds food supplies, the locusts may shift to the destructive swarming phase.

*The Enemy: Above left, the seven locust growth stages—a hatchling, four subsequent instars (moltings), a just-fledged adult, a mature adult. Specimens are constantly collected for clues to breeding density and possible swarm movements. Above right, Moroccan calf surveys locust swarm that may imperil its feed supply. Left, severe infestation near an Ethiopian DLCOEA field station. Asmara, in Ethiopia, is headquarters for locust campaigns by this organization. (Photos from Food and Agriculture Organization.)*

lings were reported in large numbers along the Tihama—the low plain that follows the coastline south along the Saudi shore and along Yemen. Locusts were also found along the coast of the Gulf of Aden in Southern Yemen. The greatest concentrations, however, appeared to be in Saudi Arabia. This area is of central importance to locust control, for the prevailing winds that sweep over it can move locust swarms rapidly for great distances and with devastating effect.

Saudi locust control ground crews, launching their principal attack against the hoppers hatching in the Tihama, soon realized that they were losing their battle and that aerial measures would be needed.

In response to a request by the Saudi Government, the United States sent an advance team of scientists from the Air Force and USDA in mid-January 1969, to determine whether USAF aerial spraying capabilities could be applied to the control of the Tihama crisis. Hopper concentrations were pinpointed and details worked out on bases, facilities, and spray materials to be supplied by the Saudi Government. Then, in March, three USAF UC-123B's began making sorties—35 in all—to spray some 16,250 gallons of locusticide over almost a million acres.

The locusticide used has a residual effectiveness for hopper control that exceeds 40 days, and even as its power as a stomach poison wanes, continuous eating by the hopper soon builds up a lethal dose. Spraying was completed April 8. By mid-April it was evident from ground surveys that the mission had been a complete success. Subsequent reports indicate that it eliminated locust concentrations whose swarming would almost certainly have caused widespread destruction.

The locust crisis of 1968 and 1969 is only the latest chapter in a worldwide and age-long story of destruction. Except for the northern and southern extremities of the earth, it appears that locusts have always been a threat to man's food supply. On every continent they have chewed their way into the recorded history of the region—and the Desert Locust of Africa and Asia has long been considered one of the worst.

The name "grasshopper"—bringing memories of many a farming tragedy on the American plains—is often used for the migratory locust, to prevent confusion with the practically harmless Seventeen-Year Cicada, which is popularly called the Seventeen-Year Locust in the United States. Actually, the cicada is not a locust or even related to the true locust; it belongs to a completely different order of insects, the true bugs, or hemiptera. The locusts and grasshoppers belong to the order of insects called orthoptera; and, for a more careful distinction, scientists have given the Desert Locust the name *Schistocerca gregaria,* because it has many different common names in the many countries it invades.

In recent decades, concerted cooperative control measures on an international basis have kept concentrations of locust in check. However, the entomologists firmly tell us that should vigilance slacken or should the weather for several years in a row strike the right seasonal combinations for breeding, the Desert Locust among all the grasshoppers has the greatest potential to reach devastating plague levels.

Other locusts, such as the Red Locust and the African Migratory Locust, also pose a threat to the agriculture of the same areas as the Desert Locust, but their breeding

practices make them easier to control. Such locusts, for example, have more or less limited "outbreak areas" that can be watched, but the Desert Locust has no such habitual outbreak areas. Further, it can have years of dormancy when its plague potential can be almost forgotten. Scientists have labeled these periods between the Desert Locust's appearances at near-plague or plague levels as periods of "recession" between "invasions." They have found that these invasions have no rhythmical or cyclical periodicity.

In 1921, to explain this complex insect, Sir Boris P. Uvarov advanced the "phase theory," according to which each plague species exists in two phases—solitary and gregarious—that are connected by transitional forms of the grasshopper. The insect can go on propagating its species without the transition from the solitary to the gregarious phase, unless weather conditions are ripe for the change.

In the solitary phase, the Desert Locust is chameleon-like, adjusting its color to its surroundings. It is also more sluggish and has a lower metabolic and oxygen-intake rate. In the gregarious phase, it is a totally different insect. The nymph takes on an orange-yellow or black and yellow coloration and becomes quite active. Changes also occur in its physical structure as it grows, its head and shoulders becoming larger and its wings longer; and there are always more nymphs present than in the solitary phase—from banding together or from a heavier hatch, or both.

The gregarious or swarm stage begins with the migration of the hopper nymphs, marching as they eat and molting as they grow. There are five of these molts, which are called instars, and trained locust experts can identify each. After the fifth instar, the hoppers—still hungry—change into pink immature adults and begin to swarm. It is at this stage that the longest flights are made and the most damage is done by feeding.

The question has been: What causes the change from phase to phase? Scientists are not 100 percent certain, but they credit a combination of factors. Heavier rains in normally drier areas both permit a larger hatch and provide more local food for the hopper nymphs to feed on; this produces more adults and more eggs; and if the weather is again favorable, the hatch soon exceeds the food and the overpopulation causes a change in phase.

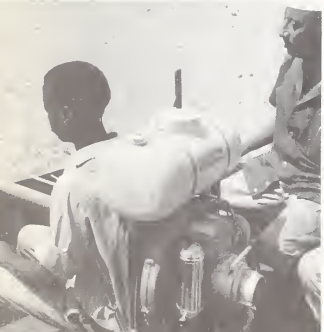
A factor controlling the movement of the locusts is temperature. If it is cool, they will remain on the ground for days, as they have done in some Ethiopian highlands. When temperatures rise above 60° in clear weather or 75° in cloudy weather, they take off at about 10 miles per hour into the wind. But most winds are stronger than the locusts' flight, and the insects turn and move with the prevailing wind.

In the mornings and evenings when it is cooler, the swarms fly closer to the ground and have a flatter formation. During the day the flight spreads out, and this "stratiform" swarm becomes a "cumuliform" mass of great height like a cumulus cloud, with a ball-like rolling movement. As it moves, some locusts may drop out to feed and then take off later. Usually, few insects are left behind, but storms may kill many. This movement with the wind often results in depositing swarms where winds form a squall line and rain falls to water the vegetation. Here the horde may reach the mature adult stage, breed, lay several batches of egg cases with 20 to 120 eggs each, and die—leaving the new generations, perhaps to swarm in their turn.

It is their ability to fly by wing in any direction and to move with the prevailing winds for thousands of miles that scatters the breeding or "outbreak" areas over many lands. Thus, in any number of locations, new generations may start and—according to environmental conditions—either remain solitary locusts going mostly unnoticed or hatch in high density and swell the swarms already at plague level.

Obviously, the best control methods are those that kill the hoppers as they hatch and before they can do much damage or fly away. Therefore, prompt reports of outbreak areas, followed by equally prompt control programs, are the aim of locust control groups. The job is an immense one, requiring and receiving the constant cooperation of all the locust-endangered countries, both with each other and with the FAO-sponsored Desert Locust Information Service.

*The Battle: Below, Sudanese DLCOEA worker spreads poison bait; bottom left, Ethiopians on guard with portable dusters; bottom right, DLCOEA plane loaded for spraying, Asmara.*



# CROPS AND MARKETS SHORTS

## Weekly Report on Rotterdam Grain Prices

Current prices for imported grain at Rotterdam, the Netherlands, compared with a week earlier and a year ago, are as follows:

| Item | July 15 | Change from previous week | A year ago |
|---|---|---|---|
| | *Dol.* | *Cents* | *Dol.* |
| Wheat: | *per bu.* | *per bu.* | *per bu.* |
| Canadian No. 2 Manitoba .. | 1.92 | 0 | 2.02 |
| USSR SKS-14 ..... | 1.84 | 0 | (1) |
| Australian Prime Hard .... | 1.87 | 0 | (1) |
| U.S. No. 2 Dark Northern Spring: | | | |
| 14 percent ..... | 1.91 | 0 | 2.00 |
| 15 percent ..... | 1.92 | 0 | 2.00 |
| U.S. No. 2 Hard Winter: | | | |
| 14 percent ..... | 1.95 | 0 | 1.99 |
| Argentine ..... | (1) | (1) | (1) |
| U.S. No. 2 Soft Red Winter . | 1.70 | −1 | 1.73 |
| Feedgrains: | | | |
| U.S. No. 3 Yellow corn .... | 1.47 | 0 | 1.30 |
| Argentine Plate corn ..... | 1.65 | −2 | 1.47 |
| U.S. No. 2 sorghum ..... | 1.28 | 0 | 1.23 |
| Argentine-Granifero ..... | 1.29 | +1 | 1.28 |

[1] Not quoted.

Note: All quoted c.i.f. Rotterdam for 30- to 60-day delivery.

## Canada's Corn Gets Slow Start

This year's Canadian corn crop, grown mostly in Ontario, may be no larger than that of 1968, despite March 1 intentions to plant 11 percent more area. Planting was delayed by wet, cool weather. These same conditions are retarding development of the corn plants.

Farmers were selling corn at the end of June for Can $1.50 per bushel and Canadian No. 2 corn was quoted at Chatham, Ontario at $1.56 per bushel, which would be in line with Chicago corn delivered in Ontario. These prices contrast with $1.02 received by farmers last September and October. The low harvesttime prices, which may recur this fall, are reportedly due to the failure of storage capacity to increase with the size of the crop.

## Indonesian Milk Processing Plant

An Australian condensed-milk plant in Djakarta, built at a cost of about $2.2 million, was officially opened by President Suharto of Indonesia on July 3, 1969.

The plant has an initial annual capacity of 1 million cases, each case containing forty-eight 14-ounce cans. When operating at full capacity, the plant will provide the Australian dairy industry with an additional market for 10 million pounds of nonfat dry milk and 3 million pounds of butter oil annually. The Djakarta plant, along with the recombining plants in the Philippines, Thailand, and Singapore, will utilize a total of almost 45 million pounds of nonfat dry milk and 12 million pounds of butterfat per year. A fifth plant is scheduled to open in Cambodia by the end of 1969.

The Indonesian plant is a joint venture between the Australian Dairy Board and Djakarta business firms. For the present, the Australians hold the majority interest and provide the managerial and technical personnel for the operation. There is a provision in the agreement whereby Indonesians can acquire up to 50 percent interest in the plant as well as have Indonesian nationals trained for most of the responsible positions as quickly as it is feasible.

A second phase of the Djakarta condensed-milk plant involves plans for the development of a recombined fluid-milk plant in conjunction with the existing operation. Indonesia has a shortage of fluid milk and needs to supplement domestic output. A plant of this type would enable Indonesia to expand output of fluid milk and provide a further valuable outlet for Australian raw materials.

For a long time the Australian Dairy Board has been developing new markets for dairy products in Southeast Asia. In recent years the pressure of large stocks of dairy products in the European market, mainly the European Community, and devaluation of the pound sterling (which put Australia's dairy exports to the United Kingdom at a disadvantage) have increased the importance of Southeast Asian markets for Australia's dairy industry.

## U.S. Meat Imports Up From 1968 Levels

U.S. meat imports subject to quota restrictions during May totaled 80.5 million pounds. Imports during January-May totaled 398.9 million pounds—up 13.0 percent from the first 5 months of last year.

U.S. IMPORTS SUBJECT TO MEAT IMPORT LAW
(P. L. 88-482)

| Imports | May | Jan.-May |
|---|---|---|
| | *Million* | *Million* |
| 1969: | *pounds* | *pounds* |
| Subject to Meat Import Law [1] ..... | 80.5 | 398.9 |
| Total beef and veal [2] ..... | 87.1 | 440.9 |
| Total red meats [3] ..... | 131.3 | 622.3 |
| 1968: | | |
| Subject to Meat Import Law [1] ..... | 56.1 | 351.9 |
| Total beef and veal [2] ..... | 71.3 | 394.2 |
| Total red meats [3] ..... | 106.5 | 576.5 |
| 1967: | | |
| Subject to Meat Import Law [1] ..... | 51.5 | 308.1 |
| Total beef and veal [2] ..... | 56.9 | 333.8 |
| Total red meats [3] ..... | 88.9 | 499.7 |

[1] Fresh, chilled or frozen beef, veal, mutton, and goat meat.
[2] All forms, including canned and preserved.
[3] Total beef, veal, pork, lamb, mutton, and goat meat.

## U.S. Trade in Livestock and Meat

During May both exports and imports for the major categories of livestock and meat products were above year-earlier levels. Exports of red meats showed sizable gains for the first 5 months in 1969, while imports increased only moderately.

Total red meat imports rose from 106.5 million pounds in

May 1968 to 131.3 million pounds in May of this year, an increase of 23.4 percent. Red meat imports for the first 5 months of 1969 totaled 622.3 million pounds, 7.9 percent above the comparable period last year. Greater boneless-beef imports contributed the most significantly to this increase. All categories of livestock imports, except hogs, were up for the first 5 months of 1969.

U.S. IMPORTS OF SELECTED LIVESTOCK PRODUCTS

| Commodity | May | | Jan.-May | |
|---|---|---|---|---|
| | 1968 | 1969 | 1968 | 1969 |
| Red meats: | | | | |
| Beef and veal: | | | | |
| Fresh and frozen: | *1,000* | *1,000* | *1,000* | *1,000* |
| Bone-in beef: | *pounds* | *pounds* | *pounds* | *pounds* |
| Frozen | 280 | 399 | 2,691 | 2,408 |
| Fresh and chilled | 1,616 | 639 | 6,747 | 4,919 |
| Boneless beef | 48,273 | 71,114 | 303,808 | 359,070 |
| Cuts (prepared) | 194 | 107 | 536 | 755 |
| Veal | 2,110 | 2,315 | 9,492 | 11,979 |
| Canned beef: | | | | |
| Corned | 9,977 | 7,347 | 36,135 | 33,801 |
| Other, incl. sausage | 1,936 | 1,901 | 7,211 | 6,554 |
| Prepared and preserved | 6,879 | 3,291 | 27,544 | 21,416 |
| Total beef and veal [1] | 71,268 | 87,112 | 394,165 | 440,903 |
| Pork: | | | | |
| Fresh and frozen | 5,795 | 5,123 | 22,987 | 20,344 |
| Canned: | | | | |
| Hams and shoulders | 189 | 204 | 584 | 553 |
| Other | 3,073 | 3,102 | 17,515 | 11,658 |
| Cured: | | | | |
| Hams and shoulders | 19,090 | 23,573 | 95,789 | 100,805 |
| Other | 467 | 278 | 1,828 | 1,332 |
| Sausage | 170 | 493 | 968 | 1,314 |
| Total pork [1] | 28,783 | 32,774 | 139,672 | 136,004 |
| Mutton and goat | 3,795 | 6,026 | 29,174 | 20,542 |
| Lamb | 1,155 | 3,330 | 5,519 | 16,358 |
| Other sausage | 708 | 985 | 3,012 | 3,482 |
| Other meats | 762 | 1,117 | 4,976 | 5,043 |
| Total red meats [1] | 106,472 | 131,343 | 576,521 | 622,337 |
| Variety meats | 353 | 445 | 1,527 | 1,722 |
| Meat extract | 56 | 50 | 322 | 467 |
| Wool (clean basis): | | | | |
| Dutiable | 12,960 | 9,588 | 65,875 | 44,622 |
| Duty-free | 8,224 | 9,659 | 47,310 | 36,607 |
| Total wool [1] | 21,186 | 19,248 | 113,186 | 81,228 |
| Animal hair | 352 | 524 | 3,686 | 3,343 |
| | *1,000* | *1,000* | *1,000* | *1,000* |
| Hides and skins: | *pieces* | *pieces* | *pieces* | *pieces* |
| Cattle | 33 | 29 | 171 | 116 |
| Calf | 29 | 28 | 180 | 129 |
| Kip | 24 | 12 | 102 | 129 |
| Buffalo | 53 | 35 | 212 | 198 |
| Sheep and lamb | 3,658 | 4,105 | 16,700 | 12,348 |
| Goat and kid | 418 | 472 | 2,757 | 2,168 |
| Horse | 20 | 22 | 140 | 101 |
| Pig | 48 | 71 | 286 | 308 |
| Livestock: | *Number* | *Number* | *Number* | *Number* |
| Cattle [2] | 110,591 | 80,758 | 475,590 | 442,348 |
| Sheep | 47 | 17 | 1,056 | 1,607 |
| Hogs | 2,796 | 1,035 | 10,132 | 3,671 |
| Horses, asses, mules, and burros | 355 | 283 | 1,286 | 1,365 |

[1] May not add due to rounding. [2] Includes cattle for breeding.
U.S. Department of Commerce, Bureau of the Census.

Red meat exports during May of 1969 totaled 27.1 million pounds, over three times those of last year. Pork, predominantly fresh, chilled, or frozen, accounted for the greatest percentage of this increase, rising from 2.2 million pounds in May 1968 to 22.3 million pounds this year. Relatively higher Canadian pork prices plus greater shipments of pork to Japan caused the increase.

Exports of red meats during the first 5 months of 1969 totaled 92.2 million pounds, nearly double those of last year. Again, pork exports contributed substantially to the increase. Among the animal fats, May lard exports were about 3½ times larger than those of a year earlier, bringing the 5-month total up to 105.0 million pounds. With the exception of calf and horse hides, May exports of all other categories of hides and skins were above the 1968 levels; and all the live animal exports for the first 5 months of 1969, except for those in the category of cattle and calves, were also above the 1968 levels.

U.S. EXPORTS OF SELECTED LIVESTOCK PRODUCTS

| Commodity | May | | Jan.-May | |
|---|---|---|---|---|
| | 1968 | 1969 | 1968 | 1969 |
| | *1,000* | *1,000* | *1,000* | *1,000* |
| Animal fats: | *pounds* | *pounds* | *pounds* | *pounds* |
| Lard | 8,493 | 39,482 | 74,923 | 105,007 |
| Tallow and greases: | | | | |
| Inedible | 168,217 | 202,795 | 931,221 | 844,571 |
| Edible | 528 | 1,974 | 3,477 | 6,518 |
| Meats: | | | | |
| Beef and veal | 2,481 | 2,501 | 11,684 | 11,222 |
| Pork | 2,159 | 22,269 | 13,324 | 71,652 |
| Lamb and mutton | 130 | 131 | 782 | 833 |
| Sausages: | | | | |
| Canned | 120 | 113 | 607 | 487 |
| Except canned | 282 | 809 | 1,154 | 1,819 |
| Meat specialties: | | | | |
| Canned | 108 | 76 | 571 | 518 |
| Frozen | 130 | 487 | 809 | 1,277 |
| Other canned | 658 | 703 | 3,686 | 4,392 |
| Total red meats [1] | 6,063 | 27,093 | 32,611 | 92,216 |
| Variety meats | 16,066 | 21,549 | 86,139 | 87,595 |
| Sausage casings: | | | | |
| Hog | 480 | 748 | 2,702 | 3,112 |
| Other natural | 215 | 449 | 1,209 | 1,559 |
| Mohair | 1,038 | 1,739 | 4,442 | 5,370 |
| Hides and skins: | | | | |
| Cattle parts | 4,183 | 4,456 | 14,747 | 14,211 |
| | *1,000* | *1,000* | *1,000* | *1,000* |
| | *pieces* | *pieces* | *pieces* | *pieces* |
| Cattle | 1,023 | 1,859 | 4,949 | 6,072 |
| Calf | 214 | 138 | 983 | 614 |
| Kip | 24 | 40 | 140 | 198 |
| Sheep and lamb | 332 | 356 | 1,374 | 1,517 |
| Horse | 7 | 5 | 38 | 25 |
| Goat and kid | 12 | 60 | 98 | 168 |
| Livestock: | *Number* | *Number* | *Number* | *Number* |
| Cattle and calves | 2,922 | 2,611 | 15,895 | 15,620 |
| Sheep, lambs, and goats | 18,694 | 24,603 | 54,620 | 55,960 |
| Hogs | 985 | 1,943 | 4,615 | 8,908 |
| Horses, asses, mules, and burros | 1,168 | 983 | 3,124 | 4,036 |

[1] May not add due to rounding.
U.S. Department of Commerce, Bureau of the Census.

## Smaller Italian Almond Crop

Italy's 1969 almond crop, adversely affected by late frost and heavy rains, is forecast at 25,000 short tons, kernel basis. This is 45 percent under the 1968 crop and 40 percent below the 1962-66 average.

With 38,500 tons indicated, 1968-69 exports are sharply ahead of the previous season. West Germany, France, the Netherlands, and the USSR are the major importers of Italian almonds. Some firms object to dealing with the USSR because

of the Russian practice of sending letters of credit covering 80 percent of cost, paying the balance on arrival. In the event of controversy, the exporter finds it almost impossible to win.

Since early April, when it became clear that the new crop was heavily damaged, prices have soared. They increased from 66 cents per pound in February to a peak of 79 cents per pound in late April. Demand shifted to the Spanish product, and during May the market dropped off slightly. Recent f.o.b. quotations are around 76 cents per pound.

ITALY'S ALMOND SUPPLY AND DISTRIBUTION

| Item | Average 1962-66 | Year beginning Sept. 1 1966-67 | 1967-68 | 1968-69 [1] |
|---|---|---|---|---|
| | *1,000 short tons* | *1,000 short tons* | *1,000 short tons* | *1,000 short tons* |
| Beginning stocks (Sept. 1) | 4.4 | 3.0 | 2.0 | 4.0 |
| Production | 35.7 | 42.0 | 43.0 | 47.0 |
| Imports | .2 | .1 | .3 | .3 |
| Total supply | 40.3 | 45.1 | 45.3 | 51.3 |
| Exports | 29.4 | 35.0 | 31.5 | 38.5 |
| Domestic disappearance | 8.3 | 8.1 | 9.8 | 10.8 |
| Ending stocks (Aug. 31) | 2.6 | 2.0 | 4.0 | 2.0 |
| Total distribution | 40.3 | 45.1 | 45.3 | 51.3 |

[1] Preliminary.

## Increase in French Import Quotas

Import quotas will be increased for several American fruit and vegetable products, according to the French Ministry of Economics and Finance. Quotas for the second half of 1969 will be increased by 50 percent over the January-June 1969 quota. Specific quotas are:

Prunes, conditioned for retail sale .....750 tons
Canned tomatoes and tomato juice .....900,000 francs ($180,000)
Canned fruits (divided ¼ pineapple, ¼ peaches in sirup, and ½ fruit cocktail and other fruits) .....9,000 tons
Legumes and other vegetables, dried and dehydrated .....63 tons

A Ministry official reported, "A notice to importers will be published in the near future and I further specify that necessary steps will be taken so that corresponding licenses will be delivered as quickly as possible within the framework of the procedure utilized up to now."

## Indonesia Restricts Tobacco Imports

The Indonesian Department of Trade announced that imports of Virginia leaf must now be covered by foreign exchange at a higher rate, 379 rupees per dollar, compared to the old rate of 326 rupees per dollar. The action was taken to restrict imports of lower quality leaf which compete with domestic production.

Imports of U.S. leaf under Public Law 480 are apparently not affected. However, no shipments were programed during 1968.

U.S. exports of unmanufactured leaf to Indonesia during 1968 totaled 724,000 pounds at a value of $596,000.

## Rising Philippine Tobacco Exports

Philippine exports of unmanufactured tobacco during the first quarter of calendar year 1969, at 20.8 million pounds, were up 40 percent compared with the 14.8 million pounds exported in the same quarter a year earlier. Exports to the United States during this period were 5.7 million pounds compared with 3.4 million pounds last year.

Shipments to West Germany and Spain were down, but exports to other countries more than tripled. The average export price during the quarter was 22.1 cents per pound compared with 14.0 cents last year.

The Philippines exported a total of 94 million pounds of unmanufactured tobacco during 1968, representing an alltime record. Based on increased 1968 production and continuing the 4 to 1 export-import quota requirement, the 1969 exports are likely to exceed the 1968 level.

PHILIPPINE UNMANUFACTURED TOBACCO EXPORTS

| Country | January-March 1968 Quantity | 1968 Value | 1969 Quantity | 1969 Value |
|---|---|---|---|---|
| | | *U.S. cents* | | *U.S. cents* |
| | *Mil. lb.* | *per lb.* | *Mil. lb.* | *per lb.* |
| United States | 3.4 | 7.6 | 5.7 | 26.8 |
| West Germany | 3.2 | 6.3 | .9 | 24.5 |
| Spain | 2.7 | 25.4 | 1.9 | 30.7 |
| Others | 5.5 | 16.6 | 12.3 | 18.5 |
| Total | 14.8 | 14.0 | 20.8 | 22.1 |

## British Honduras Sugar Crop Reduced

British Honduras' sugar crop estimates for 1968-69 have been lowered from 62,000 long tons to 52,000 long tons. The production drop is attributed to the lower prices paid to the farmers last year and failure to replant and fertilize properly. Prices to farmers were raised this year from US$6 per ton to US$7 per long ton of cane. It is believed that this price increase will give farmers an incentive to spray, fertilize, and replant. Production, however, will increase only gradually.

The only sugar producer in the country, British Honduras Sugar Industries (BSI), based its 1966 investment of about US$20 million on a 20,000-long-ton British quota, a 25,000-short-ton base quota for the U.S., a free-market price of about 3¼ cents a pound, and a total production in British Honduras of about 125,000 tons. The U.S. base quota, however, amounted to 10,000 tons, and the world price plummeted; therefore, the planned rate of expansion was reduced.

Next year, BSI hopes to produce 60,000 long tons. Expansion beyond this level is said to be dependent on market possibilities.

### Crops and Markets Index

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# Midyear Agricultural Outlook in Eastern Europe

Midyear agricultural prospects in Eastern Europe range from fair to very good.

A record level of grain production is possible for the region, assuming continuation of favorable conditions, although individual records are expected in only a few countries. In the southern countries—Bulgaria, Hungary, Romania, and Yugoslavia—the situation is vastly improved from that of a year earlier, when droughts reduced output, but in the northern countries—Czechoslovakia, East Germany, and Poland—prospects are for poorer harvests than in 1968, when grain production reached record levels. Output of spring crops, however, still will be shaped by weather during the remainder of the summer. Livestock inventories generally were down in early 1969; the consequences were revealed in unchanged or reduced meat production in several countries, but an upturn is forecast for the second half of 1969.

An increase from 1968 of almost 5 percent in Eastern Europe's combined output of wheat and feedgrains is forecast as of July 1. The wheat area is about the same as in 1968, but an increased corn area is estimated. Total wheat production could exceed the 1967 record of 25.4 million metric tons. Little change in combined barley and oats output is forecast, but a considerable increase in corn production from the drought-reduced crop of 1968 is likely, given favorable weather during the remainder of the growing season. Rye production is expected to decline.

Prospects are poorer in the northern countries than in 1968. Some winterkill, a delayed and cold spring, and below-normal precipitation in Poland and Czechoslovakia dampened the production outlook. The winter wheat crop generally was only in fair condition in the spring. Spring sowing was 2 to 3 weeks later than last year. Soil moisture levels in mid-June were below normal in Poland and Czechoslovakia, but above normal in East Germany.

A sharp improvement over 1968 is forecast for grain production in the southern countries. Timely rains in September, followed by a dry October, facilitated sowing and germination of winter grains. Grains overwintered well. Spring was late and cold and despite below-normal rainfall, soil moisture levels were about normal on May 1. May was hot and dry and concern about the crops developed, but the situation was alleviated by good rains in June.

Net imports of about 2 million tons of grain are anticipated following the 1969 harvest in Eastern Europe. This is a decline from the preceding year's net imports. However, the projected decrease in net trade reflects increases in both imports and exports.

If 1969 production reaches the level anticipated on the basis of July 1 conditions, imports of grain by the northern countries can be expected to increase by about a million tons. Purchases probably will be oriented toward wheat from the Soviet Union, but substantial quantities of feedgrains also may be imported. Export availabilities in the southern countries should increase. Romania and Yugoslavia could export large quantities of corn, in the neighborhood of a million tons each. Romania should have a considerable excess of wheat as well. Compared with the previous year, an increase of about 1.5 million tons in grain exports by the southern countries is forecast. Substantial grain imports by the southern countries are not expected.

The cold, late spring delayed planting of other spring crops, and production indications still were indefinite for most crops as of July 1. The total area of oilseeds in Eastern Europe is down substantially as a result of heavy winterkill of the rapeseed crop. About one-third of the rapeseed crop in Poland was damaged severely during the winter, and losses also were sustained in East Germany. Consequently, availabilities of rapeseed and rapeseed oil for export should be reduced. On the other hand, prospects for the sunflower crop are favorable. The outlook for the potato and sugarbeet crops is only fair, but much depends on the remainder of the growing season.

Declines in inventories of livestock, especially hogs, which account for the largest share of meat production in Eastern Europe, generally were noted at the beginning of 1969. The sharpest reductions in hog numbers occurred in Hungary and Yugoslavia, but a slight reduction also took place in Czechoslovakia. Foot-and-mouth disease and anticipated or realized reductions in feed production were instrumental in the cutback of hog herds. Cattle numbers also declined in the southern countries, especially in Yugoslavia, which encountered difficulties in exporting livestock and meat to foreign markets.

Domestic meat shortages developed in Czechoslovakia and Hungary during the first half of 1969. Czechoslovakia's per capita meat consumption is relatively high, but a leveling off of production since 1965 and increased demand have caused disequilibrium in the meat situation. In the spring of 1969 proposals were made to purchase meat from non-Communist countries, as well as from the traditional Communist sources, to hold down inflationary pressures. The shortages in Hungary were associated with the sharp drop in hog numbers. Meat imports were accelerated and exports of slaughter hogs reduced to counter the situation. —DAVID M. SCHOONOVER

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